

Supplemental Material Table 1. Timeline of recruitment and data collection for urinary biomarker study

	Mount Sinai	Cincinnati	Kaiser
	School of Medicine (MSSM)		
Visit 1A*			
Dates	NA	2004-2006	NA
N	NA	379	NA
Visit 1			
Dates	2004-2007	2004-2006	2005-2006
N	416	346	444
Breast Stages	416	346	441
Urines	406	323	422
Visit 2A*			
Dates	NA	2005-2007	NA
Visit 2			
Dates	2005-2008	2005-2007	2006-2007
Breast Stages	309	330	407

NA=not Applicable

*Data from Cincinnati Visits 1A and 2A were not included in this paper. Cincinnati saw participants twice a year and collected urine at the second first-year visit (Visit 1B); therefore visit 1 data for Cincinnati for this paper were from visit 1B and visit 2 is visit 2B. Other sites saw girls annually (visits 1 and 2); visits 1 and 2 were approximately one year apart. Information on the exact intervals is provided in Table 1 of the paper.

Urine analyses and Visit 2 data were those available as of May 2009, and visits for girls that occurred after this date and urinary analyses were not available. Therefore the number of urinary biomarkers in Table 1 of the paper is smaller than the total girls seen at visit 2 indicated above.

Supplemental Material Table 2: Urinary Environmental Biomarker Concentrations (medians). Breast Cancer and the Environment Research Centers Cohort of 6-8 year-old girls, 2004-2007

Biomarker	Abbreviation	LOD ug/L	%>LOD	Min-Max ug/L	Median ug/L	Min-Max ug/g Cr	Median ug/g Cr
PHENOLS							
Benzophenone	BP3	0.4	98.5	LOD—46,100	23.6	LOD -36,789	26.9
<i>bis</i> -PhenolA	BPA	0.4	94.7	LOD—116	2	LOD -124	2.4
2,5-Dichlorophenol	25DCP	0.2	98.4	LOD—27,200	10.9	LOD -57,783	12.7
Triclosan	TCS	2.3	82.2	LOD—4550	11.4	LOD -2535	14.7
Methylparaben	MPB	2	99.6	LOD—8390	51	LOD -8701	63.1
Propylparaben	PPB	0.4	94.2	LOD—2360	6	LOD -1504	7.4
Butylparaben	BPB	0.4	47.1	LOD—901	0.1	LOD -657	0.3
Paraben Molar Sum	Paraben Sum	.	.	1.1—11,614	73.1	2.4-10,973	90.8
PHTHALATES							
monoethyl phthalate	MEP	0.7	100.0	2—17,500	87.2	9.9-11,840	106.1
monobutyl phthalate	MBP	0.6	99.4	LOD—6330	40.4	LOD-5076	47.9
mono-isobutyl phthalate	MIBP	0.3	98.4	LOD—988	12.4	LOD -759	14.0
mono(3-carboxypropyl) phthalate	MCP	0.2	99.0	LOD—585	5.1	LOD -666	6.1
monobenzyl phthalate	MBZP	0.3	99.6	LOD—2790	25	LOD -1636.4	29.3
mono(2-ethylhexyl) phthalate	MEHP	1.2	80.3	LOD—358	3.3	LOD -320	4.2
mono(2-ethyl-5-oxo-hexyl) phthalate	MEOHP	0.7	99.6	LOD—1066	24.1	LOD -1002	28.0
mono(2-ethyl-5-hydroxy-hexyl) phthalate	MEHHP	0.7	99.7	LOD—1860	38.7	LOD -1785	44.7
mono(2-ethyl-5-carboxypentyl) phthalate	MECPP	0.6	99.9	LOD—2780	62.8	LOD -3127	74.4
Phthalate molar sums							
Low Molecular Weight phthalate metabolites	Low-MWP	.	.	2.6—17,620	154	22.0-11,922	181.1
DEHP metabolites	DEHP sum			2.6—4931	122	16.7-5547	142.0
High Molecular Weight phthalate metabolites	High-MWP	.	.	2.99—5016	176	20.1-5612	201.9
PHYTOESTROGENS							
Daidzein	DAZ	0.3	100	1.3—29,500	81.7	1.3-29,032	99.8
Genistein	GNS	0.3	100	0.4—13,900	36.7	1.0-14,977	44.4
Enterolactone	ETL	0.3	100	2.1—18,200	411	4.2-55,909	500.6
Creatinine (mg/dL)		.	.	4—465	90.2		

N (with at least one biomarker) 1151

LOD=limit of detection

Molar sums were created by converting each paraben and phthalate metabolite to its own molar equivalent ($\mu\text{M/L}$) and then summing the umoles to get total umoles/L of metabolites. In order to more easily compare the sum-concentrations in umoles/L ($\Sigma \mu\text{M/L}$) with other single biomarkers ($\mu\text{g/L}$), the resulting molar sum was then expressed as a single typical metabolite in units of $\mu\text{g/L}$.

Paraben sum is the molar sum ($\Sigma \mu\text{M/L}$) of methyl- (MW=152), butyl- (MW=194), and propyl- (MW=180) parabens. Paraben sum was expressed as propylparaben in $\mu\text{g/L}$ by multiplying by its MW ($\Sigma \mu\text{M/L} * 180 = \Sigma \mu\text{g/L}$). Low-MWP is the molar sum ($\Sigma \mu\text{M/L}$) of MEP (MW=194), mono-butyl phthalate (MW=222), and mono-*iso*-butyl phthalate (MW=222). The sum was expressed as MEP in $\mu\text{g/L}$ ($\Sigma \mu\text{M/L} * 194 = \Sigma \mu\text{g/L}$). Similarly, DEHP sum is the molar sum of mono-2-ethyl-5-carboxypentyl phthalate (MW=308), mono-(2-ethyl-5-hydroxylhexyl) phthalate (MW=294), mono-(2-ethyl-5-oxohexyl) phthalate (MW=292), and MEHP (MW=278) expressed as MEHP (MW=278). High-MWP is the molar sum of DEHP, mono-benzyl phthalate (MW=256), and mono-3-carboxypropyl phthalate (MW=252) expressed in $\mu\text{g/L}$ as MEHP.

Supplemental Table 3. Adjusted Prevalence Ratios (PR) and 95% Confidence Intervals (CI) for any breast development stage (B2+ vs B1) at Visit 2 in relation to urinary environmental biomarkers (except enterolactone) with a possible interaction with age-specific BMI% measured at Visit 1. Enterolactone results are in Table 4 of the Paper.

		Quintiles of creatinine-corrected biomarker concentrations					p-trend	p-interaction
		Q1 (ref)	Q2: PR (CI)	Q3: PR (CI)	Q4: PR (CI)	Q5: PR (CI)		
BP3	N B2+/N total	15/82	18/101	18/93	22/104	17/110		
	<median BMI%	1	1.06 (0.96-1.16)	1.04 (0.94-1.15)	1.08 (0.98-1.20)	1.09 (0.99-1.21)	0.08	0.09
	N B2+/N total	61/114	47/96	46/103	30/93	23/86		
	>=median BMI%	1.30 (1.19-1.43)	1.28 (1.17-1.40)	1.29 (1.18-1.42)	1.20 (1.09-1.33)	1.25 (1.12-1.39)	0.17	
2,5-DCP	N B2+/N total	17/116	16/100	19/97	18/87	20/90		
	<median BMI%	1	0.98 (0.90-1.06)	0.93 (0.85-1.02)	0.98 (0.89-1.08)	0.96 (0.87-1.06)	0.56	0.07
	N B2+/N total	17/80	35/97	43/99	56/110	56/10		
	>=median BMI%	1.09 (1.00-1.18)	1.13 (1.04-1.23)	1.15 (1.05-1.25)	1.23 (1.12-1.34)	1.22 (1.12-1.34)	0.009	
High-MWP	N B2+/N total	22/95	17/97	13/105	16/103	22/90		
	<median BMI%	1	0.93 (0.85-1.03)	0.90 (0.83-0.99)	0.95 (0.87-1.05)	1.00 (0.91-1.11)	0.80	0.04
	N B2+/N total	45/101	45/100	40/91	24/94	53/106		
	>=median BMI%	1.15 (1.05-1.25)	1.16 (1.06-1.28)	1.18 (1.08-1.30)	1.05 (0.95-1.15)	1.20 (1.09-1.32)	0.94	
Genistein	N B2+/N total	17/96	29/106	14/89	17/104	13/96		
	<median BMI%	1	1.09 (1.00-1.19)	0.98 (0.90-1.07)	0.99 (0.90-1.08)	1.00 (0.92-1.09)	0.43	0.13
	N B2+/N total	45/100	36/91	51/107	37/93	37/100		
	>=median BMI%	1.24 (1.14-1.34)	1.19 (1.09-1.30)	1.26 (1.16-1.37)	1.21 (1.10-1.32)	1.19 (1.09-1.29)	0.30	

N=948 observations with all variables. p-trend is the Wald test.

Models were adjusted for site, race, BMI% (< or ≥ the median) at visit 1, quintile biomarker, interaction between quintile biomarker (ordinal values) & 2-level BMI% , age in months at visit 2, season of urine collection and parent/guardian education.